



**THE DATASHEET OF  
10TPC33MB**



TPB series are the standard products.

TPC series are low-profile products derived from the TPB series.

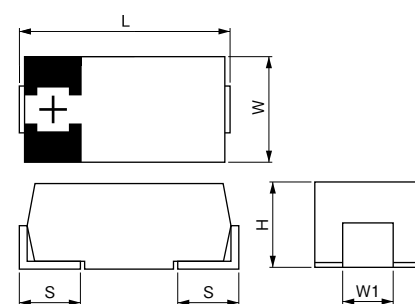
B2 size is the miniaturized version of TPB series.



## Specifications

Items	Condition	Specifications				
		4.0	6.3	8.0	10	12.5
Rated voltage (V)	—	4.0	6.3	8.0	10	12.5
Surge voltage (V)	—	4.6	7.2	9.2	12	14
Category temperature range (°C)	—	-55 to +105				
Capacitance tolerance (%)	120Hz/20°C	M : ±20				
Rated capacitance range (μF)	120Hz/20°C	33 to 470				
Dissipation Factor (DF)	120Hz/20°C	Please see the attached characteristics list				
Leakage current	Rated voltage applied, after 5 minutes	Please see the attached characteristics list				
Equivalent series resistance (ESR)	100kHz/+20°C	Please see the attached characteristics list				
Characteristics of impedance ratio at high temp. and low temp.	100kHz/20°C	-55°C	Z/Z <sub>20°C</sub>	0.6 to 2.0		
		+105°C	Z/Z <sub>20°C</sub>	0.6 to 2.0		
Endurance	105°C, 2,000h B2 size : 105°C, 1,000h, Rated voltage applied *Rated temp. 85°C products: 85°C, 1,000h, rated voltage applied	ΔC/C	Within±20% of the initial value			
		DF	≤ 1.5 times of the initial limit			
		LC	Within the initial limit			
Damp heat (Steady State)	60°C, 90 to 95%RH, 500h, No-applied voltage	ΔC/C	Within+40%, -20% of the initial value			
		DF	≤ 1.5 times of the initial limit			
		LC	≤ 3 times of the initial limit			
Surge	105°C, 1,000 cycles, 1kΩ discharge resistance, surge voltage applied *Rated temp. 85°C products:85°C	ΔC/C	Within±5% of the initial value			
		DF	Within the initial limit			
		LC	≤ 3 times of the initial limit			

## Dimensions



(unit: mm)

Size code	L ±0.2*1	W ±0.2	H ±0.1*2	S ±0.2	W1 ±0.1
B1	3.5	2.8	1.1	0.8	2.2
B2	3.5	2.8	1.9	0.8	2.2
D2	7.3	4.3	1.9	1.3	2.4
D3L	7.3	4.3	2.8	1.3	2.4
D4	7.3	4.3	3.8	1.3	2.4

\*1 ±0.3:D3L, D4  
\*2 ±0.2:D3L, D4

## Size list

RV : Rated voltage

RV	4.0	6.3	8.0	10.0	12.5
10					B1
15					B1
22			B1		
33		B1		B1,B2	
47		B1		B2	
68	B2	B2		D2	
100		D2		D2	
150		D2	D2	D3L	
220		D3L		D3L,D4	
330	D3L	D2,D3L,D4		D4	
470		D4			

**TPB series characteristics list**

Size code	Part number	Rated voltage (V)	Rated temperature (°C)	Rated capacitance (μF)	Category voltage (V)	Category temperature (°C)	DF (% max)	LC (μA) max/5min.	ESR (mΩmax) 100kHz/20°C	Maximum allowable ripple current (mA rms) 100kHz <sup>*1</sup>	MSL	
											Reflow temp. ≤ 260°C	Reflow temp. ≤ 250°C
B2	10TPB47M	10	105	47	10	105	8.0	47.0	70	1100	3	3
	10TPB33M	10	105	33	10	105	8.0	33.0	70	1100	3	3
	6TPB68M	6.3	105	68	6.3	105	8.0	42.8	70	1100	3	3
	4TPB68M	4.0	105	68	4.0	105	8.0	27.2	70	1100	3	3
D3L	10TPB220ML	10	105	220	10	105	10.0	220.0	40	2000	—	2a
	10TPB150ML	10	105	150	10	105	10.0	150.0	40	2000	3	2a
	6TPB330ML	6.3	105	330	6.3	105	10.0	207.9	40	2000	3	2a
	6TPB330MAL	6.3	85	330	5.0	105	10.0	207.9	40	2000	3	2a
	6TPB220ML	6.3	105	220	6.3	105	10.0	138.6	40	2000	3	2a
	4TPB330ML	4.0	105	330	4.0	105	10.0	132.0	40	2000	3	2a
D4	10TPB330M	10	105	330	10	105	10.0	330.0	35	3000	—	2a
	10TPB220M	10	105	220	10	105	10.0	220.0	40	3000	3	2a
	6TPB470M	6.3	105	470	6.3	105	15.0	296.1	35	3000	3	2a
	6TPB330M	6.3	105	330	6.3	105	10.0	207.9	40	3000	3	2a

\*1 100k to 500kHz,45°C

**TPC series characteristics list**

Size code	Part number	Rated voltage (V)	Rated temperature (°C)	Rated capacitance (μF)	Category voltage (V)	Category temperature (°C)	DF (% max)	LC (μA) max/5min.	ESR (mΩmax) 100kHz/20°C	Maximum allowable ripple current (mA rms) 100kHz <sup>*1</sup>	MSL	
											Reflow temp. ≤ 260°C	Reflow temp. ≤ 250°C
B1	12TPC15M	12.5	85	15	10	105	10.0	18.8	80	800	3	3
	12TPC10M	12.5	85	10	10	105	10.0	12.5	80	800	3	3
	10TPC33MB	10	85	33	8.0	105	10.0	33.0	70	1000	3	3
	8TPC22M	8.0	85	22	6.3	105	10.0	17.6	70	1000	3	3
	6TPC47MB	6.3	85	47	5.0	105	10.0	29.6	70	1000	3	3
	6TPC47M	6.3	85	47	5.0	105	10.0	29.6	55	1100	3	3
D2	10TPC100M	10	105	100	10	105	10.0	100.0	45	1700	3	2a
	10TPC68M	10	105	68	10	105	10.0	68.0	45	1700	3	2a
	8TPC150M	8.0	105	150	8.0	105	10.0	120.0	40	1900	3	2a
	6TPC330MA	6.3	85	330	5.0	105	10.0	207.9	40	1900	3	2a
	6TPC150M	6.3	105	150	6.3	105	10.0	94.5	40	1900	3	2a
	6TPC100M	6.3	105	100	6.3	105	10.0	63.0	45	1700	3	2a

\*1 100k to 500kHz,45°C

**OSCON**  
OS-CON Line-up

Guidelines and precautions for use

**Selection guide**

- Series system diagram
- Image of case size
- Products list
- Packing specifications (SMD type)
- Packing specifications (Radial lead type)

**Technical data**

- Recommended soldering condition
- Fundamental structure
- Characteristics
- Reliability

**Surface mount type**

- SVPF
- SVPE
- SVPS
- SVPD
- SVPC
- SVPB
- SVPA
- SVQP
- SVP

**Radial lead type**

- SEPF
- SEPC
- SEQP
- SEP

Catalog Deletion and EOL series

**POSCAP**  
POSCAP Line-up

Guidelines and precautions for use

**Selection guide**

- Series system diagram
- Image of case size
- Products list
- Explanation of part numbers
- Packing specifications

**Technical data**

- Marking
- Recommended land pattern dimension
- Recommended soldering condition
- Fundamental structure
- Characteristics
- Reliability

**Surface mount type**

- TPU
- TPH
- TPG
- TPSF
- TPE
- TPB/TPC**
- TPL·TPLF
- TPF
- TA
- TV
- TH
- TQC

Catalog Deletion and EOL models

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